

1 **ABSTRACT**

2 Methods and systems for fingerprinting digital data are described. In the
3 described embodiment, Direct Sequence Spread Spectrum (DSSS) technology is
4 utilized. Unique fingerprinting words are defined where each includes at least one
5 spread sequence. In one embodiment, a fingerprinting word comprises a plurality
6 symbols, called " Γ symbols." Each Γ symbol is composed of $2c-1$ blocks, where c
7 represents the number of colluders that are desired to be protected against. Each
8 block contains d spread sequence chips. The fingerprinting words are assigned to
9 a plurality of entities to which protected objects embedded with the fingerprinting
10 words are to be distributed. To ascertain the identity of an entity that has altered
11 its unique fingerprinting word, the relative weight of each block is computed in
12 accordance with a defined function and blocks whose weights satisfy a
13 predetermined relationship are "clipped" to a so-called working range. Each Γ -
14 symbol of the altered fingerprinting word is then processed to produce a set of one
15 or more colors that might be the subject of a collusion. Each Γ -symbol in the
16 fingerprinting word for each entity is then evaluated against a corresponding
17 produced set and the entity having the most overall Γ -symbol coincidences is
18 incriminated.

19
20
21
22
23
24
25